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swimming off disappeared down a tule lane, calling loudly as if, hidden in their mazes, he was sure of finding the mother who would care for all his wants.

The next time I passed the Coot Gateway, I was hurrying by absent-mindedly and surprised four small Redheads standing on the platform. Was my little friend among them, happily reunited to his family? The mother must have been sitting down resting, for she jumped up and vanished, the four young also disappearing by magic. After that piece of consummate carelessness, creep in as noiselessly as I might, it was all in vain. I had lost a rare opportunity. One pretty sight near the Gateway, though quite aside the mark, was a long row of young dragon flies on a telephone wire.

I often stopped at the Gateway on my way back and forth to our mail box which the crippled carrier, on the return curve of his thirty mile route, passed at intervals varying widely with roads and weather. Coming in sight far up the second angle of the road, following section lines between grain fields, the head of his old white horse could be watched till it reached the box, and then watched disappearing down the highway—a highway that seemed merely an incident, winding down between endless fields of ripening grain. Before the harvest, the fields that had changed from green to gold under my eyes, softened to pale straw color that, as the landscape stretched away, went well with the creamy horizon cloudlets. In one long interval of waiting, when resting in a recess in the wheat with camp stool for pillow, I watched the silky long-bearded wheat softly blowing across the sky till the blue seemed a wondrous blue and the prairie clouds seemed to gather protectingly close.

(*To be continued*)

A SHORT PAPER ON THE HUTTON VIREO

By CLARK C. VAN FLEET

WITHIN the last two years I have made the acquaintance of a new friend among the birds, namely, the Hutton Vireo (*Vireo huttoni huttoni*), to me one of the most interesting of our California songsters. This is a common enough bird in Sonoma County, but one that must be searched for and his acquaintance sought, in order to know him well. His is a quiet, unobtrusive nature, and his olive green coat blends so well with his surroundings that many individuals might be passed, in good territory, by an unobservant person, before gaining a glimpse of one.

The Hutton Vireo is not a bird likely to draw attention to himself. There is no fluttering of wings or hasty glances here and there for food, such as distinguishes the Kinglet; no hammering or pounding and gay chattering or scolding, in the manner of the Plain Titmouse. His sober mantle of olive green is not less subdued than his movement from branch to branch, and tree to tree, his quiet peering under leaves and bark scales, where he takes toll of the teeming insect life. Occasionally a large insect will fall his prey; he will then stop and diligently snip off the wings and legs before attempting to swallow it. Rarely, he will dive forth from the protection of the trees at a passing insect,

very much in the manner of a flycatcher; but on his return to the protection of the green foliage his flycatcher propensities desert him and he usually goes full tilt into the cover rather than show himself longer than necessary.

During the fall and winter this Vireo's liquid note is seldom heard and then but a contented bar or two while feeding. But at the first breaking of winter into spring his notes become more frequent. The nuptial song is a constant repetition of a single note, often for a prolonged period. It is like the twanging of a bow string in one key, *quid, quid, quid*, repeated indefinitely. The above is not an attempt to reproduce the note, as it has more liquid quality and there is a slight cadence in it ranging higher towards the end of the note. In some individuals it is given a slight trill like water over stones. The earliest I have heard their song, if song it could be called, is in the first week of February, and it is to be heard from then on until late summer.

One always associates the Hutton Vireo in his mind with the live oaks. I always think of this little fellow as the spirit of the live oak tree. The tree stationary, unconscious until livened by its spirit, in whose enfolding bosom the spirit lives and dies. If trees can love, how they must cherish the cheery sprite that spends its life in fond protection of their bodies. The body seldom dies and the spirit is constantly renewed, the association is eternal. The spirit wanders but ever returns to its castle, and I can think that nothing would please it better than to die nestled at the foot of its live oak.

About the first and second weeks in March home-building is begun. The site being properly chosen, both birds begin the task. The round, deep-cupped structure is built entirely of Spanish moss, the first strands being woven on both sides of the chosen crotch, with loose ends hanging down; as the building goes on these hanging ends are woven together at the bottom and the nest begins to take shape. As the structure progresses the moss that goes to build it becomes finer and finer and each strand is woven in with a weaving motion of the bill. When the nest will support the weight, each bird, after it has placed the material it has brought, pops in and works with feet and body to round out and cup the structure.

Most of the material for the nest is collected within a radius of thirty-five to fifty yards of the nest, but seldom in the immediate vicinity of the site and never from the same tree. In approaching the nest, usually from two to three stops are made before the last flight direct to the nest. On leaving the birds generally fly direct to a neighboring tree. Building progresses slowly or rapidly, as the weather permits. I noted one pair commence and complete a nest in about four days; normally a week, two, or even a greater length of time is required on account of the frequent showers we have in March and April. Sometimes a few days elapse between the completion of the nest and the depositing of the first egg, but usually the female immediately commences to lay and does so daily until the setting is complete. Incubation is begun at once.

Incubation is performed by both parents, and it is during this period that they are most wary against the detection of their treasures. I have seen one bird dive into the nesting tree, make the change at the nest and the other bird leave, so rapidly, that it seemed as though but the one bird had entered and left the tree. The nest is usually built back from some open or clear space. It is almost useless to look in the first fringe of trees about the clearing; usually the nest is to be found in the second or third row of trees from the opening. The only exception I have ever noted was a nest in a live oak in the middle of

an open pasture. Although the tree was fairly thick, the nest was deserted before an egg was laid. Whether due to my having discovered it, or the result of its position, I have no way of telling. I discovered the nest at a distance of about twenty feet from the tree and did not approach any closer until I returned for the set, when I found the nest deserted.

The nest is placed from seven to twenty-five feet up, and well out at the end of a branch, usually very well concealed. As a matter of fact unless discovered building the nest is almost impossible to locate. On one occasion I discovered a nest by the fact that its occupant, presumably the male, was singing while on the nest. I judge this to be a rather uncommon occurrence. The nest blends so well with its surroundings that sometimes, even though I have formerly located the nest, I have had difficulty in locating it again.

It might be well here to describe one or two nesting sites, to give a fair idea of their normal location. I found one nest, March 13, 1918, by following the building birds. It was located in a small live oak tree about seven feet from the ground. It would have been impossible to have seen it from any angle except directly above, unless led to it by the birds. Fronds of Spanish moss hung all about it, part of one frond being woven into one side of the nest. The nest was on the west side of the tree. Another nest, more usual in location, I found on March 8, 1918. It was about sixteen feet from the ground and about the same distance out from the trunk, near the end of a large branch in a cluster of foliage and moss. An unusual nest was one located in a manzanita bush under a live oak. This nest gave my companion and me a bad hour or two before we located it; we must have passed by it at least three times before it was discovered. This is the only instance that has come under my observation, of the bird building in other than a live oak.

The usual complement of eggs is four, sometimes three, very seldom five. I believe Mr. H. W. Carriger has one set of five taken by Mr. Gurnie Wells in Sonoma County. This is the only set of five I have heard of. The ground color of the egg is pearly white, dotted with reddish brown spots and specks at the larger end. The ground color never varies, but the number and distribution of the spots is seldom alike in any two eggs. In one set of three in my collection, one egg is pure white with very few minute specks on it; the other two have only a few slight markings. In most of the other sets I have, the markings are typical. The eggs vary somewhat in shape and size, some sets being slightly round without being distinctly larger at one end than the other, while others are elongated and larger.

About two weeks after incubation is started the nestlings are hatched and by the time the month is out they are ready to take their first trials of flight. The nestlings are fed by both parents during their stay in the nest. I watched four fledglings being fed for a period of about an hour; they were visited every five minutes on an average during this period. The nestlings were partially covered with feathers at the time and were keeping the parents very busy filling their hungry mouths.

I have given some study to bird population in this territory and estimate that in associationally good country a hundred breeding pairs to the square mile is a fair average. The area of Sonoma County is fifteen hundred square miles, and of that area about two hundred and fifty are well sprinkled with live oaks. This would give about twenty-five thousand breeding pairs of Hutton Vireos in Sonoma County. I consider this really to be a low estimate. Here

is a large field for the economic ornithologist. For instance, during the two weeks of feeding the young birds in the nest, some seventy to eighty millions of insects must be consumed by these vireos in this county alone, if the parents only work union hours and eat nothing themselves.

The nest is kept scrupulously clean by the parent birds during the period of incubation and later during the time the young birds are in the nest; and as the nest is strongly anchored to green wood and deeply cupped the danger of accident or disease is reduced to a minimum. The nests are invariably so well concealed that a marauding jay or squirrel has little chance of discovering it, unless by accident. In fact I have never found but one raided nest. After the first egg is laid it would be hard to drive the birds from the nest; but one's observations during building operations should be most discreet as the birds will surely desert if they suspect an intruder.

The Hutton Vireo can well be called one of the quietest of our native birds; for, although fairly common in country acceptable to him, his habits and dress combine to make him very little known to the average bird hunter. Therefore I have attempted in this paper to throw a little light on his home and surroundings.

Santa Rosa, California, March 23, 1919.

AUTOBIOGRAPHICAL NOTES

By HENRY WETHERBEE HENSHAW

(Continued from page 107)

TRIP TO LOUISIANA

IN 1869, a few months before the examination for Harvard, my health gave away, as indeed it had done several times before with loss of school time, and I postponed for the time entering college. In the fall of the year I was made happy by receiving an invitation from Captain Frank Webber to spend the winter in Louisiana on board the Coast Survey schooner "Varina". I sailed from Boston for New Orleans early in December, and had my first experience of a real gale at sea when off Cape Hatteras where I lost, among other things, four days out of the calendar. None the worse for my experience of one of Neptune's moods, I reached New Orleans in due time, and passed the next ten days or so in that delightful southern city. Embarking on the "Varina" about the middle of the month, we tacked leisurely down the broad expanse of the Father of Waters till we were in the Pass á l'outre, one of the five passes through which the muddy waters of the giant stream find their way into the Gulf, when about noon, when visions of lunch were uppermost in my mind, we ran upon a hidden snag, which stove a big hole in the schooner's bottom. Hasty efforts to plug the break proving unavailing, the vessel was run ashore and abandoned, though not until all our effects and the ship's stores were landed in the boats and the little steam launch. We found cordial welcome and shelter in a small fishing settlement on the banks of the pass, and I remember